Phase (check one)	Type (check one)
■ Initial Site Investigation ☐ Corrective Action Feasibility Investigation ☐ Corrective Action Plan ☐ Corrective Action Summary Report ☐ Monitoring Report	☐ Work Scope ■ Technical Report ☐ PCF Reimbursement Request ☐ General Correspondence

INITIAL SITE INVESTIGATION REPORT

Strong Farm
Center Road
East Montpelier, VT

A Property Owned By:
Fred Strong
1995 Center Road
Montpelier, Vermont 05602
(802) 229-5434

Prepared by:
Jeff Kelley
Consulting Geologist
39 Bartelink Road / P.O. Box 9
Roxbury, VT 05669
(802) 485-7539
email: conmeg97@aol.com

July 5, 1999

EXECUTIVE SUMMARY

A 750 gallon underground storage tank was removed from the Strong Farm property located in East Montpelier on May 28, 1999. Contaminated soils were encountered at the bottom of the tank / bedrock interface at a maximum reading of 94 parts per million.

On June 8, 1999, Jeff Kelley performed an initial site investigation consisting of a series of five soil borings with PID screening in areas downgradient of the former tank location. All soil samples from the borings had 0.0 parts per million VOC concentrations when measured with the PID. Groundwater was not encountered in any of the borings.

I also collected water samples from the Strong's drilled well and the Pelkey drilled well, both of which are downgradient of the former tank location. The EPA Method 8020 analyses indicated no contamination above the detection limits in the Strong well. However, low amounts of contamination was detected in the Pelkey well. Benzene was detected at 6.4 parts per billion (which is above the Vermont Groundwater Enforcement Standard of 5.0 parts per billion), and MTBE was detected at 30 parts per billion. A follow up sample collected on June 29, 1999 from the Pelkey well showed no evidence of contamination. The discrepancy of the two sampling events cannot be explained at this time.

Based on the findings of this investigation it appears that the Strong Farm site is eligible for closure pursuant to the SMAC Classification Procedure Guidelines. However, the Pelkey well should be sampled again in the near future to reassess its water quality.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 2

1.0 INTRODUCTION / SITE HISTORY 4

2.0 METHODOLOGY 4
2.1 Soil Boring Investigation 4
2.2 Water Supply Well Sampling 4

3.0 RESULTS 5

4.0 CONCLUSIONS / RECOMMENDATIONS 6

1.0 INTRODUCTION / SITE HISTORY

The Strong Farm is located on Center Road in East Montpelier Center, Vermont and is no longer an operable farm. A 750 gallon underground storage tank (UST) was installed by the Strongs somewhere between 1945 and 1950 to store gasoline for the farm operations. Other nearby farms also used the gasoline from the tank. Mr. Strong passed away in 1977, and the tank was never filled after that year. The current owner, Mr. Fred Strong, desired to remove the UST due to liability concerns. On May 28, 1999, Jeff Kelley and Northland Petroleum removed the tank, which was cleaned and transported to Buldoc's Salvage in Barre, VT. Approximately 440 gallons of old gasoline was removed from the tank prior to its removal, and transported to a facility in Massachusetts for disposal by North Country Environmental Services of Barre, VT.

Upon removal, the tank was inspected and no holes were found. However, three soil samples were collected from the excavation bottom and screened with a photoionization detector (PID) which had been calibrated to isobutylene gas on-site that morning. The PID readings ranged from 13 parts per million (ppm) on the east side of the tank to 94 ppm in the middle of the excavation bottom. Bedrock was encountered immediately below the tank, and no groundwater was present. The three samples collected consisted of primarily broken ledge, as there was no soil below the tank, only bedrock. We were unable to assess the full extent of contamination with the equipment present, so all soils were backfilled. Based on this, plus the presence of the Strong's supply well downgradient, a Site Investigation Expressway Notification Form was faxed to the VT DEC.

This report describes the methodology and results of the initial site investigation at the property.

2.0 METHODOLOGY

2.1 Soil Boring Investigation

On June 8, 1999 I performed a series of five soil borings on the Strong Property with Adams Engineering of Underhill, VT. Each boring was advanced using Adam's vibratory rig using a 5 foot stainless steel coring device having a 2 3/8" inside diameter. The sampler was lined with a polyethylene bag, advanced in 5 foot increments or to refusal, and then brought up to surface and the soils removed for examination. The soil core was broken into either 1 foot increments or soil type, placed in a freezer bag, and the headspace within the bag was then screened with a PID for volatile organic compounds (VOCs). All borings were backfilled with a 2 foot bentonite plug plus native soil.

2.2 Water Supply Well Sampling

As there were two wells located in potentially hydraulically downgradient areas of the former tank location, each of these wells was sampled for gasoline compounds (BTEX & MTBE). The pre-preserved samples were collected on June 8, 1999 from the kitchen taps in both the Strong residence and the Pelkey residence, which was located across the road from Strongs. The

samples were delivered to Green Mountain Laboratories in Middlesex, VT for the EPA Method 8020 analyses.

3.0 RESULTS

The boring locations are shown in the attached site map. Based on a general reconnaissance of the property, it was assumed that any contaminant migration would follow the topographical gradient to the south/southwest. This gradient most likely mimics the slope of the shallow bedrock. An effort was made to satisfactorily cover any migration route which would be taken by potential contamination from the UST area. The soil logs and PID results of each boring are as follows:

Boring ID	Depth Interval	Recovery	PID Screening Results
SB-1	0-5'	16" recovery	
Description	0-16"	gravelly sand, dark gray, moist	0.0 ppm
	5-7'	8" recovery (refusal at 7')	0.0 ppm
Description	0-8"	gravelly loamy sand, moist, no water in hole after 30 minutes	
SB-2	0-37"	37" recovery, refusal at 37"	
Description	0-4"	silt loam topsoil, moist, dark brown	0.0 ppm
	4-12"	gravelly fine sand, moist, grayish brown	0.0 ppm
	12-27"	gravelly loamy fine sand, moist, grayish brown	0.0 ppm
	27-36"	fine to medium sand, moist, grayish brown	0.0 ppm
	36-37"	broken ledge	0.0 ppm
SB-3	0-5'	60" recovery	
Description	0-11"	fine sandy loam topsoil, moist, brown	0.0 ppm
	11-23"	loamy fine sand, moist, brown	0.0 ppm
	23-29"	gravelly sand, moist, grayish brown	0.0 ppm
	29-60"	silt loam, moist, grayish brown	0.0 ppm
	5-6.7'	80" recovery (refusal at 80")	
Description	60-76"	silt loam, moist, grayish brown	0.0 ppm
	76-80"	broken ledge	0.0 ppm

SB-4	0-5'	60" recovery	
Description	0-22"	fine sandy loam, moist, brown	0.0 ppm
	22-35"	gravelly silt loam, moist, grayish brown	0.0 ppm
	35-60"	loamy fine sand, moist, brown	0.0 ppm
		this interval was PID screened from 35-48", and 48-60" to assess the VOC concentration in smaller increments. Both samples were 0.0 ppm.	
	5-5.7'	8" recovery (refusal at 68")	
Description	60-68"	loamy fine sand, moist, brown	0.0 ppm
SB-5	0-4.3'	52" (refusal at 52")	
Description:	0-15"	fine sandy loam, moist, brown	0.0 ppm
	15-31"	silt loam, moist, grayish brown	0.0 ppm
	31-52"	loamy fine sand, moist, grayish brown	0.0 ppm
		this interval was PID screened from 31-46", and 46-52" to assess the VOC concentration at the soil/bedrock interface. Both samples were 0.0 ppm.	

Since no VOCs were detected in any of the boring intervals, I did not submit any samples for laboratory analysis.

The results of the Strong water supply well analysis showed that BTEX (benzene, toluene, ethyl benzene, and xylenes) and MTBE were all non-detect. However, the Pelkey well had detected concentrations of benzene (6.4 ppb), toluene (BPQL), xylenes (6.4 ppb), and MTBE (30 ppb). After receiving the analytical results, I immediately contacted the Pelkeys and recommended that they stop drinking the water until another sample could be collected for confirmation. The Pelkeys informed me that another house, the McCarthy residence, also shared their well. Mrs. Karen McCarthy was contacted and the results were discussed with her. The results were also discussed with Bob Haslam of the Sites Management Section. Based on this conversation, I collected another sample from both the Pelky and McCarthy kitchen taps on June 29, 1999 for BTEX and MTBE analyses. A "trip-blank" sample was also submitted. A 24 hour turnaround time was requested, and on June 30, 1999 I received the news that all parameters tested from both locations and the trip-blank were non-detect.

4.0 CONCLUSIONS / RECOMMENDATIONS

The soil boring investigation around the former UST location on the Strong Farm indicates that the small amount of contamination detected during the UST removal does not appear to have migrated. There were no VOCs detected in any of the boring samples using the PID, including SB-4, which was located within 2 feet of the tank excavation.

The results of the initial Pelkey well analysis are currently unexplained. Fortunately, the follow-

up sample indicates that there are currently no VOCs present in the well. However, the initial results cannot be ignored, and further sampling is warranted to reach a higher confidence level regarding the water quality of the well. It is interesting to note that, since Mr. Strong's tank contained gas that was probably from the 1970's era, it should not have contained any MTBE. My understanding is that MTBE was a fuel additive that appeared in Vermont in the early 1980's, so the MTBE detected in the Pelkey well could not have come from any release from the Strong tank.

Possible explanations of the VOCs in the Pelkey well are potential sampling or laboratory error. However, I sampled the kitchen tap personally with disposable gloves taken from their original carton that is always stored in a clean area. Similarly, the cooler used for transporting the samples was cleaned with Liquinox that morning. Green Mountain Laboratories has an excellent record regarding the quality control of their samples, and it is highly unlikely that the concentrations of benzene and MTBE could have come from their equipment. Another explanation is that the contamination came from the Pelkey leachfield, which is located about 60 feet to the south/southeast of their well. This location is downgradient of the well, which suggests that it should not impact the well. However, if the Pelkey well is cased into the underlying bedrock, which I believe to be the case, then fracture patterns would have to be assessed to determine the influence the leachfield on the well. At any rate, the Pelkeys have not dumped gasoline into their septic system except for the potential of washing their hands after filling up a car or lawn mower with gas. This would contribute only low levels of contamination to the septic tank and ultimately, the leachfield. It is unlikely that these levels would be detected if they migrated to the well.

Although the Strong Farm site investigation appears to rule out the need for further investigation in regards to the tank removal, it is recommended to continue sampling the Pelkey well. I intend to collect another sample on or around July 13th. Pending these results, further sampling intervals can be determined. I will report the analytical results to the Sites Management Section when they are available.

However, as the presence of MTBE rules out the Strong UST as a potential source to the Pelkey well, it appears warranted to grant a Sites Management Activities Completed (SMAC) status to the Strong property.

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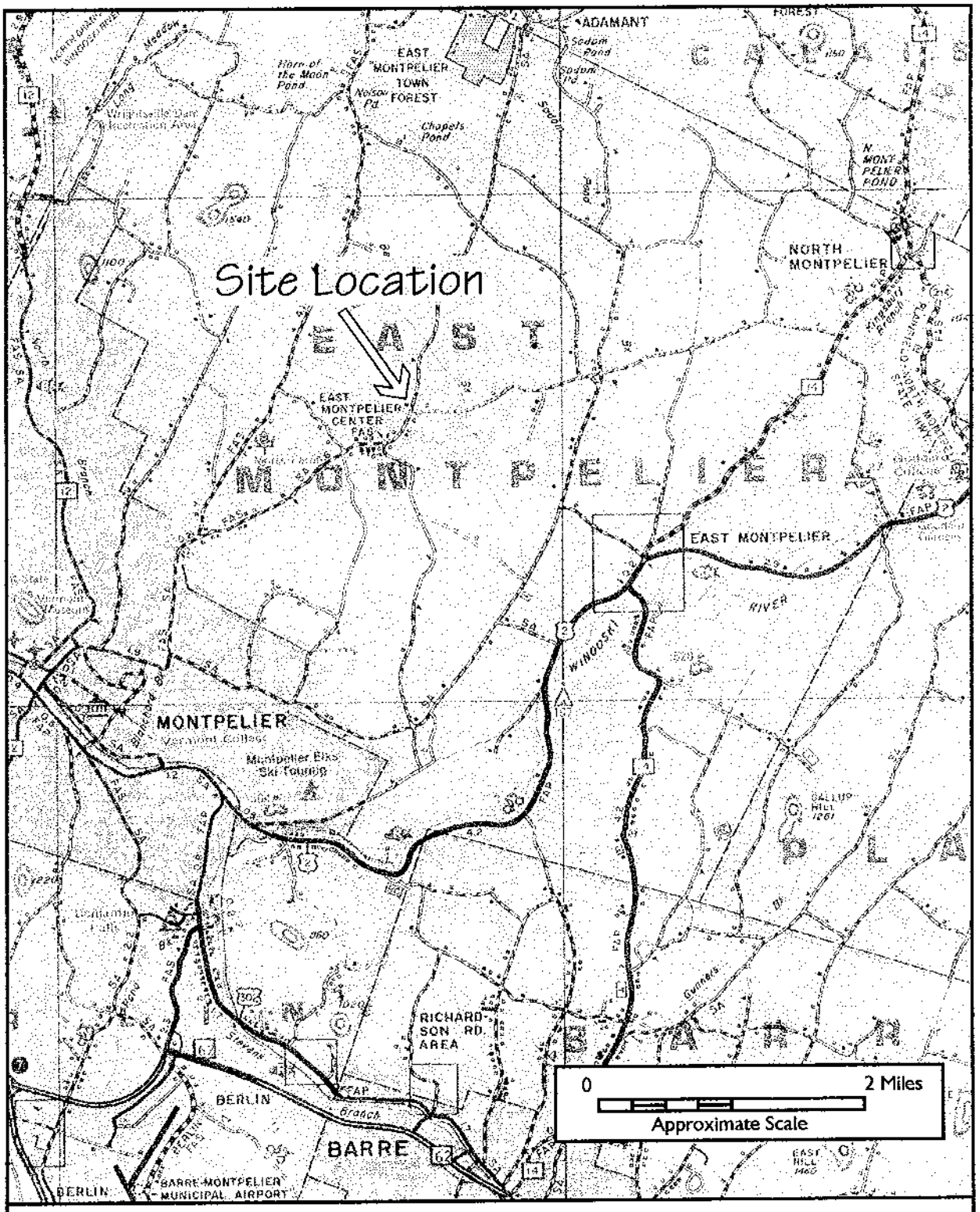
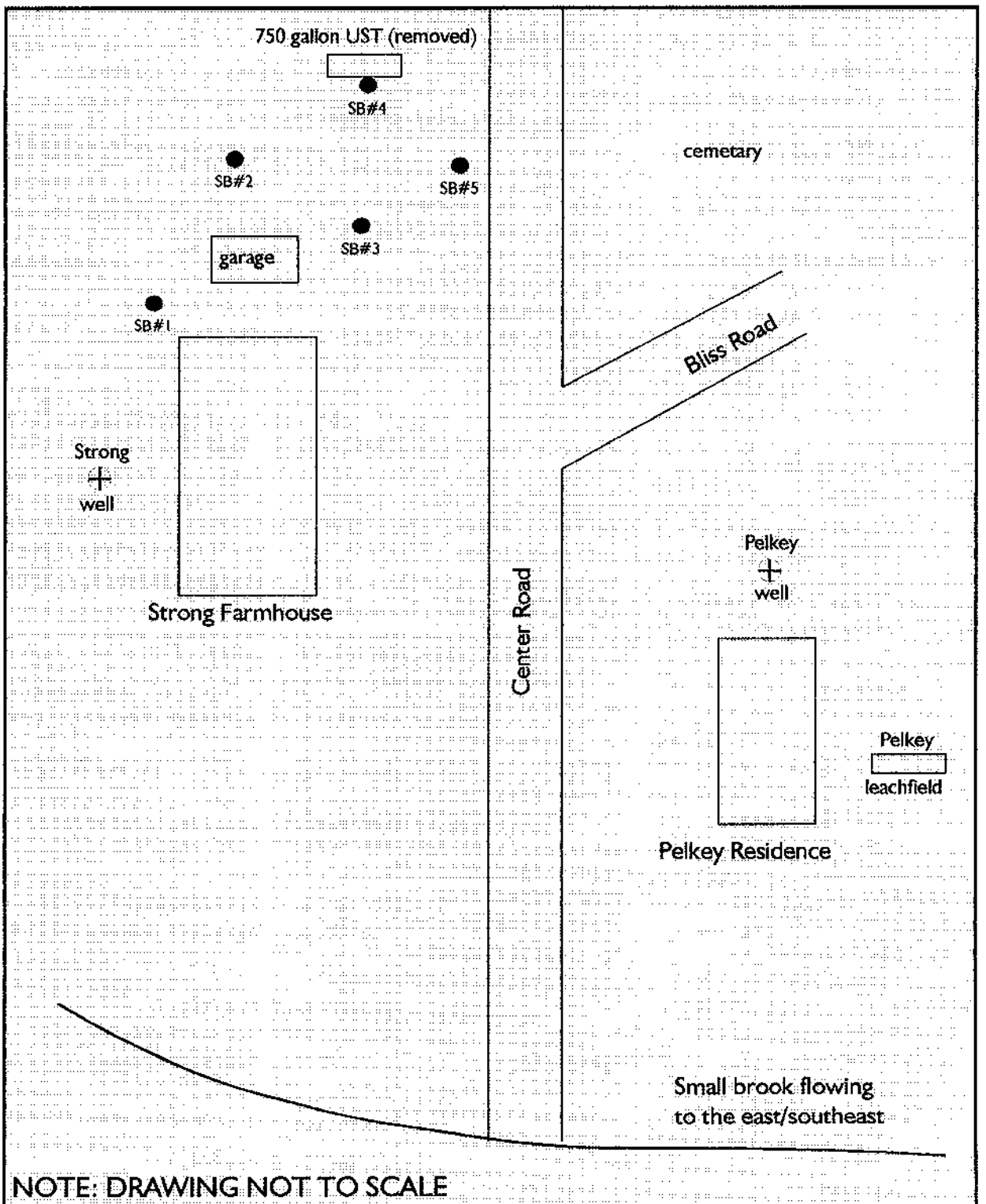
July 5, 1999



Initial Site Investigation - July 5, 1999
Strong Farm
East Montpelier, Vermont

source: The VT Atlas and Gazeteer by DeLorme

Jeff Kelley, Consulting Geologist


750 gallon UST (removed)
SB#4
SB#2
SB#5
SB#3
garage
SB#1
cemetary
Bliss Road
Strong
well
Strong Farmhouse
Center Road
Pelkey
well
Pelkey
leachfield
Pelkey Residence
Small brook flowing
to the east/southeast
NOTE: DRAWING NOT TO SCALE
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Initial Site Investigation - July 5, 1999
Strong Farm
East Montpelier, Vermont
D:\consulting\strong\sitemap.cdr
Jeff Kelley, Consulting Geologist

GREEN MOUNTAIN LABORATORIES, INC.

27 Cross Road
Middlesex, Vermont 05602

Phone (802) 223 - 1468 Fax (802) 223 - 8688

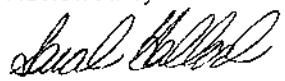
LABORATORY RESULTS

CLIENT NAME:	Jeff Kelley	REFERENCE NO.:	5427
ADDRESS:	P.O. Box 9	PROJECT NO.:	NA
	Roxbury, VT 05669	DATE OF SAMPLE:	06/08/99
SAMPLE LOCATION:	Strong Farm	DATE OF RECEIPT:	06/08/99
SAMPLER:	Jeff Kelley	DATE OF ANALYSIS:	06/15/99
ATTENTION:	Jeff Kelley	DATE OF REPORT:	06/17/99

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for analysis were preserved with HCl.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:



Sarah Hallock
Quality Assurance Officer

GREEN MOUNTAIN LABORATORIES, INC.

27 Cross Road
Middlesex, Vermont 05602

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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

GML REF. # : 5427
STATION: STRONG KITCHEN TAP
ANALYSIS DATE: 06/15/99
DATE SAMPLED: 06/08/99
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 94.9 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

GREEN MOUNTAIN LABORATORIES, INC.

27 Cross Road
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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

GML REF. # : 5427
STATION: PELKEY KITCHEN TAP
ANALYSIS DATE: 06/15/99
DATE SAMPLED: 06/08/99
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	6.4
Toluene	1	BPQL
Ethylbenzene	1	ND
Xylenes	3	6.4
MTBE	5	30

Surrogate % Recovery: 94.9 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

Green Mountain Laboratories, Inc.

27 Cross Road
Middlesex, Vermont 05602
Phone (802) 223-1468 Fax (802) 223-8688
E-mail: GML@together.net

GML SAMPLE #

Client Name Jeff Kelley
Address PO Box 9 Roxbury 05669
Phone / Fax 485-7539
Project Name STRONG FARM
Project Number —
Project Manager Jeff Kelley
Sampler JK

Page 1 of 1

GML # 5427

#	Sample Location	Date	Time	# of Cont.	Pres.	Sample Type	Analysis Requested: 8260 - MTBE	Remarks
	STRONG KITCHEN TAP	6-8-99	1202	2	HCl	water	X	
	KELSEY KITCHEN TAP	6-8-99	12:11	2	HCl	water	X	

Chain of Custody

Relinquished By:	Date/Time: 6-8-99 13:11	Received By:	Date/Time: 6/8/99 13:11
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Temperature Blank:	Vial Lot ID #:		

GREEN MOUNTAIN LABORATORIES, INC.

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LABORATORY RESULTS

CLIENT NAME:	Jeff Kelley	REFERENCE NO.:	5522
ADDRESS:	58 East State Street	PROJECT NO.:	NA
	Roxbury, VT 05669	DATE OF SAMPLE:	06/29/99
SAMPLE LOCATION:	Strong Farm	DATE OF RECEIPT:	06/29/99
SAMPLER:	Jeff Kelley	DATE OF ANALYSIS:	06/29/99 - 06/30/99
ATTENTION:	Jeff Kelley	DATE OF REPORT:	07/01/99

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCl. The trip blank was prepared by the laboratory from reagent water.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Sarah Hallock
Director of Chemical Services

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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

GML REF. # :	5522
STATION:	PELKEY KITCHEN
ANALYSIS DATE:	06/29/99
DATE SAMPLED:	06/29/99
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 101 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

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Middlesex, Vermont 05602

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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

GML REF. # :	5522
STATION:	MCCARTHY KITCHEN
ANALYSIS DATE:	06/29/99
DATE SAMPLED:	06/29/99
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 98.8 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

GML REF. # :	5522
STATION:	TRIP BLANK
ANALYSIS DATE:	06/30/99
DATE SAMPLED:	06/29/99
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 99.8 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

Green Mountain Laboratories, Inc.

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Middlesex, Vermont 05602
Phone (802) 223-1468 Fax (802) 223-8688
E-mail: GML@together.net

Page ____ of ____

GML # 5522

GML SAMPLE #

Client Name: Jeff Kelley
Address: 58 E. State ST, Roxbury
Phone / Fax: 485-7539
Project Name: STRONG FARM
Project Number:
Project Manager: Jeff Kelley
Sampler: Jeff Kelley

#	Sample Location	Date	Time	# of Cont.	Pres.	Sample Type	Analysis Requested: MTBE / BTEX	Remarks
1	PELKEY KITCHEN	6-29-99	0905	2	HCl	Water	X	
2	McCARTHY KITCHEN	6-29-99	0923	2	HCl	Water	X	
3	TRIP BLANK	6/29/99	0830	2	HCl	water	X	

Chain of Custody

Relinquished By:	Date/Time: 6-29-99 11:39	Received By:	Date/Time: 6/29/99 11:39
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Temperature Blank:	Vial Lot ID #:		